Amendments to the Claims

This listing of claims will replace all prior versions, and listings, of claims in the application:

Listing of Claims:

1. (Currently amended) A computer tomography method having the following steps:

a) generating ~~generation~~ by a radiation source ~~of~~ a bundle of rays that passes though an object moving periodically,

b) producing ~~production of~~ a relative movement between the radiation source on the one hand and the object on the other hand, which relative movement comprises rotation about an axis of rotation,

c) acquiring ~~acquisition~~, with a detector unit and during the relative movement, ~~of~~ measured values that depend on the intensity in the bundle of rays on ~~the~~ a far side of the object,

d) sensing ~~of~~ a movement signal dependent on the movement of the object with a movement-sensing means and determining ~~determination of~~ cyclically repeated phases of movement based on ~~with the help of~~ the movement signal sensed,

e) reconstructing ~~reconstruction of~~ a plurality of intermediate images of a region of an object, each intermediate image being reconstructed with measured values that were acquired while the object was in a different phase of movement, and assigning ~~thus enabling~~ a phase of movement ~~to be assigned~~ to each intermediate image,

f) determining ~~determination of~~ the phase of movement in which there was least movement of the object in the region, by determining the intermediate image having the fewest motion artifacts in the region,

g) reconstructing ~~reconstruction of~~ a computer tomographic image of the region from measured values that were acquired while the object was in the phase of movement in which there was least movement of the object in said region, the

reconstruction parameters ~~that are used in this case~~ differing from the reconstructions parameters used to reconstruct the intermediate images.

2. (Previously presented) A computer tomography method as claimed in claim 1, wherein the intermediate images in step e) are reconstructed with a lower spatial resolution than the computer tomographic image to be reconstructed in step g).

3. (Previously presented) A computer tomography method as claimed in claim 1, wherein the region of the object that is to be analyzed is divided into a plurality of sub-regions and in that steps e) to g) are performed for each sub-region.

4. (Currently amended) A computer tomography method as claimed in claim 1, wherein, based on ~~with the help of~~ a motion-artifact metric, there is determined for each intermediate image a motion-artifact value by applying the motion-artifact metric solely to measured values from the particular intermediate image, and in that the intermediate image having the lowest motion-artifact value is determined to be the intermediate image having the fewest motion artifacts.

5. (Previously presented) A computer tomography method as claimed in claim 4, wherein the motion-artifact value of an intermediate image is the mean of gradients of image values in the intermediate image in the direction of an axis of rotation.

6. (Currently amended) A computer tomography method as claimed in claim 5, wherein the gradients are weighted before a mean thereof is formed, ~~in which case~~ wherein a gradient that is situated in an overlap region of the object, through which region rays having acquisition times situated in different periods pass, is given a higher weight than a gradient that is not situated in an overlap region.

7. (Currently amended) A computer tomograph ~~for carrying out the method claimed in claim 1~~, having

a radiation source for generating a bundle of rays that passes through an object moving in a cycle,

a drive arrangement for producing a relative movement between the radiation source on the one hand and the object on the other hand, which relative movement comprises a rotation about an axis of rotation,

a detector unit for acquiring, during the relative movement, measured values that depend on the intensity in the bundle of rays on the far side of the object,

a movement-sensing means~~, in particular an electrocardiograph,~~ for the sensing of a movement signal dependent on the movement of the object with a movement-sensing means, wherein the movement-sensing means includes an electrocardiograph,

a reconstructing unit for reconstructing a computer tomographic image of the object from the measured values,

a control unit for controlling the radiation source, the drive arrangement, the detector unit, the movement-sensing means and the reconstructing unit in the following steps:

a) generating ~~generation~~ by the radiation source of a bundle of rays that passes though an object that moves ~~in a~~ periodically,

b) producing ~~production of~~ a relative movement between the radiation source on the one hand and the object on the other hand, which relative movement comprises rotation about an axis of rotation,

c) acquiring~~acquisition~~, with the detector unit and during the relative movement, of measured values that depend on the intensity in the bundle of rays on ~~the~~ a far side of the object,

d) sensing ~~of~~ a movement signal dependent on the movement of the object with the movement-sensing means and determining ~~determination of~~ periodically repeated phases of movement based on ~~with the help of~~ the movement signal sensed,

e) reconstructing ~~reconstruction of~~ a plurality of intermediate images of a region of the object, each intermediate image being reconstructed with measured values

that were acquired while the object was in a different phase of movement, and assigning ~~thus enabling~~ a phase of movement ~~to be assigned~~ to each intermediate image,

f) determining ~~determination of~~ the phase of movement in which there was least movement of the object in the region, by determining the intermediate image having the fewest motion artifacts in the region,

g) reconstructing ~~reconstruction of~~ a computer tomographic image of the region of the object from measured values that were acquired while the object was in the phase of movement in which there was least movement of the object in said region, the reconstruction parameters that are used in this case differing from the reconstruction parameters used to reconstruct the intermediate images.

8. (Currently amended) A computer readable medium encoded with a computer program for a control unit for controlling a radiation source, a drive arrangement, a detector unit, and a reconstructing unit of a computer tomograph for carrying out the steps of:~~method claimed in claim 1~~

generating by the radiation source of a bundle of rays that passes though an object that moves periodically,

producing a relative movement between the radiation source on the one hand and the object on the other hand, which relative movement comprises rotation about an axis of rotation,

acquiring, with the detector unit and during the relative movement, of measured values that depend on the intensity in the bundle of rays on a far side of the object,

sensing a movement signal dependent on the movement of the object with the movement-sensing means and determining periodically repeated phases of movement based on the movement signal sensed,

reconstructing a plurality of intermediate images of a region of the object, each intermediate image being reconstructed with measured values that were acquired while the object was in a different phase of movement, and assigning a phase of movement to each intermediate image,

determining the phase of movement in which there was least movement of the object in the region, by determining the intermediate image having the fewest motion artifacts in the region, and

reconstructing a computer tomographic image of the region of the object from measured values that were acquired while the object was in the phase of movement in which there was least movement of the object in said region, the reconstruction parameters differing from the reconstruction parameters used to reconstruct the intermediate images.

9. (New) The computer tomograph of claim 7, wherein the reconstructing unit determines a motion-artifact metric for the intermediate images.

10. (New) The computer tomograph of claim 7, wherein the reconstructing unit determines a motion-artifact value for the intermediate images.

11. (New) The computer tomograph of claim 7, wherein the reconstructing unit determines mean gradients of the intermediate images.

12. (New) The computer tomograph of claim 11, wherein the reconstructing unit using the mean gradients to determine the intermediate image that has the fewest motion artifacts.

13. (New) The computer tomograph of claim 7, wherein a relatively higher mean gradient is indicative of relatively increased motion artifact.

14. (New) The computer tomograph of claim 7, wherein the reconstructing unit determines the mean gradients of image values along the direction of the axis of rotation.

15. (New) The computer tomograph of claim 14, wherein the mean gradient is used as a motion-artifact metric.

16. (New) The computer tomograph of claim 7, wherein the reconstructing unit determines the mean gradients along the direction of the angle of rotation of the radiation source.

17. (New) The computer tomograph of claim 16, wherein the mean gradient is used as a motion-artifact value.

18. (New) The computer tomograph of claim 16, wherein the reconstructing unit determines the mean gradient by calculating a gradient of the image values for each voxel in an intermediate image and calculating the mean of these gradients.

19. (New) The computer tomograph of claim 16, wherein the reconstructing unit determines the mean gradient by determining gradients of image values along the direction of the angle of rotation of the source, weighting the gradients, and determining the mean of the weighted gradients.

20. (New) The computer readable medium of claim 8, wherein the computer program controls the reconstructing unit to carry out the step of determining for each intermediate image a motion-artifact value based on a motion-artifact metric, wherein the intermediate image having the lowest motion-artifact value is determined to be the intermediate image having the fewest motion artifacts.